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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,739	12/02/2003	Rudi Bartels	XP-1130	3096
21013 7590 02/13/2008 AGFA CORPORATION PATENT DEPARTMENT 200 BALLARDVALE STREET WILMINGTON, MA 01887			EXAMINER ZHU, RICHARD Z	
			ART UNIT 2625	PAPER NUMBER
			MAIL DATE 02/13/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/725,739

Applicant(s)

BARTELS, RUDI

Examiner

Richard Z. Zhu

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement

1. Acknowledgement is made of applicant's amendment made on 12/26/2007. Applicant's submission filed has been entered and made of record. Applicant's oath/declaration filed on 1/22/2008 has been entered and made of record.

Response to Applicant's Arguments

2. In view of applicant's cancellation of previously presented claims, all rejections made in the previous office action are hereby withdrawn. New grounds of rejection are entered.
3. The examiner agrees, in principle, with the applicant with respect to the analysis between the disclosed invention and the prior art of record as to *Samworth* in what density regions or parcel areas AM and FM halftone screen are applied.

However, the applicant disclosed on Page 2 and Page 3 of the disclosure that the disadvantage of FM is that it reproduces the midtones of an image with poorer quality and that the spirit of the invention is to resolve this issue by imposing AM Halftoning in the midtone region while retaining FM Halftoning in the highlight and shadow region.

Samworth also recognized that FM produces poor image due to grainy effect at midtone and shadow regions in Col 2, Rows 43-56 and that *Samworth* proposed to resolve the matter by generating a FM screen and an AM screen independently in order to generate a composite output which retains FM in the highlight region while resolve the grainy effect by imposing AM in the midtone and shadow region (**Fig 7 and see Col 3, Rows 1-45 as well as Col 6, Rows 58-67**). As a result, the examiner was startled with the following comparison:

	Highlight Region	Midtone Region	Shadow Region
Applicant	FM	AM	FM
<i>Samworth</i>	FM	AM	AM

In essence, the applicant disclosed by imposing AM upon a FM image, the problem of grainy effect caused by FM is resolved whereas ***Samworth*** suggested essentially the same thing: applying AM to a FM image in order to compensate for the deficiency of the FM in the Midtone region and the Shadow Region. It appears to the examiner that the applicant's disclosed invention appeared to have taken a step back from that of ***Samworth*** by applying AM to midtone only while allowing the image to retain the grainy effect of FM in the shadow region (**although the applicant does disclose having FM would have better reproduction of fine details, however, this property of FM is well known by comparing *Samworth's* Fig 3 and 4 and see Col 5, Rows 40-65**), which is the principle problem the applicant and ***Samworth*** seeks to solve. In view of teachings of ***Samworth***, the applicant's invention appeared to be a matter of design choice, applying AM to midtone while not applying AM to shadow to generate a composite image that retains the fine details FM as well as the grainy effect of FM which the applicant attempted to solve.

Since ***Samworth*** already taught applying FM to all of highlight, midtone, and shadow regions of an image by generating a FM screen independently of an AM screen, it is believed that to one of ordinary skill in the art at the time of the invention, given a FM image with grainy effect in the Midtone Region and Shadow Region, the teaching of ***Samworth*** would

sufficiently motivate one of ordinary skill in the art at the time of the invention to at least impose AM Halftoning to the Midtone Region in order to eliminate the grainy effect of FM in darker regions while taking full advantage of AM Halftoning's superiority in darker regions (*Samworth*, Col 5, Rows 13-15, Rows 22-24, Rows 25-30).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C 112 that form the basis for the rejections under this section made in this office action:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 28 and 30 are rejected under 35 USC 112 1st Paragraph as failing to commensurate with the written description of the disclosure.

Claims 28 and 30 includes claimed element pertaining to "a second color" whereas the specification makes no mention of color Halftoning and no corresponding disclosure pertaining to the elements being claimed. Claims 27 and 29 are proper if one interprets a first color and a second color to be colors "black" and "white" in which all levels of gray has "black" and "white" colors. For examination purpose, all claimed elements are interpreted in light of specification that discloses multi-gradation Halftoning with no mention of color Halftoning.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 27-30 and 33-36 are rejected under 35 USC 103(a) as being unpatentable over

Samworth (US 6118935 A).

Regarding Claim 27, *Samworth* discloses a method for rendering an image having densities by using halftone dots having a number, an area and a color (Fig 11), the method comprising:

in a first density range from D0 to D1 ($D1 > D0$) (Fig 7, density of highlight region), modulating density by varying a number of halftone dots having a first color and having a first fixed area (Figs 7 and Fig 10A, and see Col 5, Rows 5-15, FM involving modulating frequency or number of halftone dots and see Col 6, Rows 58-64);

in a second density range from D1 to D2 ($D2 > D1$) (Fig 7, density of midtone region), modulating density by varying a size of a fixed number of halftone dots having said first color from said first area to a second area larger than said first area (Fig 10B, and see Col 5, Rows 15-25, AM involving modulating amplitude or size of halftone dots and see Col 6, Rows 58-67);

in a third density range from D2 to D3 ($D3 > D2$) (Fig 7, density of shadow region to 255), modulating density by varying the size of a fixed number of halftone dots having said

first color and having said second fixed area (**Fig 10B, and see Col 5, Rows 15-25, AM involving modulating amplitude or size of halftone dots and see Col 6, Rows 58-67**).

Although *Samworth* does not disclose applying FM to the shadow region, if one of ordinary skill in the art at the time of the invention do not mind the grainy distortion caused by FM Halftoning in shadow region and prefer to have finer detail reproduction, it would've been obvious to impose FM Halftoning on the shadow region in order to have finer detail reproduction as shown by *Samworth* (**Compare effect of Fig 3 with Fig 4**).

Regarding Claim 28, *Samworth* discloses whereby at said density level D3 spaces are left corresponding with halftone dots having a second color and having the Second area, the method further comprising:

in a fourth density range from D3 to D4 ($D4 > D3$) (Fig 7, density of shadow region to 255**), modulating density by varying the area of a fixed number of halftone dots having the second color from the second area to the first area (**Fig 10B, and see Col 5, Rows 15-25, AM involving modulating amplitude or size or area of halftone dots and see Col 6, Rows 58-67**); and**

in a fifth density range from D4 to D5 ($D5 > D4$) (Fig 7, density of shadow region to 255**), modulating density by varying the size or area of halftone dots having the second color and having the first area (**Fig 10B, and see Col 5, Rows 15-25, AM involving modulating amplitude or size of halftone dots and see Col 6, Rows 58-67**).**

Although *Samworth* does not disclose applying FM to the fifth density region, if one of ordinary skill in the art at the time of the invention do not mind the grainy distortion caused by FM Halftoning in the fifth density region and prefer to have finer detail

reproduction, it would've been obvious to impose FM Halftoning on the fifth density region in order to have finer detail reproduction as shown by *Samworth* (**Compare effect of Fig 3 FM with Fig 4 AM**).

Regarding Claim 29, *Samworth* discloses a method for generating a threshold mask array having threshold values for generating halftone dots having an area (Col 5, Rows 5-25, Dispersed Dot FM uses threshold technique of error diffusion, Amplitude Modulation AM uses threshold array mask to generate the composite threshold array mask of Col 6, Row 65 - Col 7, Row 5), a number and a first or a second color to render an image (Fig 11) having densities comprising:

subdividing the threshold mask array into a plurality of parcels wherein each of the parcels includes a parcel area (**Fig 7, parcel area for Screen 1 FM and parcel area of Screen 2 AM**);

assigning threshold values to the threshold mask for modulating density in a first range from D_0 to D_1 ($D_1 > D_0$) (**Fig 7, density of highlight region**) by varying a number of halftone dots having the first color and having a first fixed dot area smaller than the parcel area (**Figs 7 and Fig 10A, and see Col 5, Rows 5-15, FM involving modulating frequency or number of halftone dots and see Col 6, Rows 58-64**), wherein each halftone dot is entirely contained within said parcel (**halftone dots in parcel that are generated FM are entirely contained from that of dots generated by AM**);

assigning threshold values to the threshold mask for modulating density in a second range from D_1 to D_2 ($D_2 > D_1$) (**Fig 7, density of midtone region**) by varying an area of a fixed number of halftone dots having the first color from the first area to a second area

corresponding to a parcel (**Fig 10B, and see Col 5, Rows 15-25, AM involving modulating amplitude or size of halftone dots and see Col 6, Rows 58-67**); and

assigning threshold values to the threshold mask for modulating density in a third range from D2 to D3 ($D3 > D2$) (**Fig 7, density of shadow region to 255**) by varying an area of size of halftone dots having a fixed second area (**Fig 10B, and see Col 5, Rows 15-25, AM involving modulating amplitude or size of halftone dots and see Col 6, Rows 58-67**).

Although *Samworth* does not disclose applying FM to the third density range, if one of ordinary skill in the art at the time of the invention do not mind the grainy distortion caused by FM Halftoning in the third density range and prefer to have finer detail reproduction, it would've been obvious to impose FM Halftoning on the third density range in order to have finer detail reproduction as shown by *Samworth* (**Compare effect of Fig 3 FM with Fig 4 AM**).

Regarding Claim 30, *Samworth* discloses whereby at the density level D3 spaces are left corresponding with halftone dots having the second color and having the second area, further comprising:

assigning threshold values to the threshold mask for modulating density in a fourth range from D3 to D4 ($D4 > D3$) (**Fig 7, density of shadow region to 255**) by varying the area of a fixed number of halftone dots having the second color from the second area corresponding to a parcel to the first area (**Fig 10B, and see Col 5, Rows 15-25, AM involving modulating amplitude or size or area of halftone dots and see Col 6, Rows 58-67**); and

assigning threshold values to the threshold mask for modulating density in a fifth range from D4 to D5 ($D5 > D4$) (**Fig 7, density of shadow region to 255**) by varying the area of halftone dots having the second color and having the first fixed dot area, wherein each halftone dot is entirely contained within a parcel (**Fig 10B, and see Col 5, Rows 15-25, AM involving modulating amplitude or size of halftone dots and see Col 6, Rows 58-67**).

Although *Samworth* does not disclose applying FM to the fifth density region, if one of ordinary skill in the art at the time of the invention do not mind the grainy distortion caused by FM Halftoning in the fifth density region and prefer to have finer detail reproduction, it would've been obvious to impose FM Halftoning on the fifth density region in order to have finer detail reproduction as shown by *Samworth* (**Compare effect of Fig 3 FM with Fig 4 AM, if one do not mind the grainy distortion of FM screening in order to have finer detail of FM, then it is merely an issue of preference**).

Regarding Claim 33 and Claim 34, *Samworth* discloses a data processing system comprising means for carrying out the steps of the method according to claim 27 and 28 (Fig 12 and see Col 8, Rows 3-10).

Regarding Claim 35 and Claim 36, *Samworth* discloses a computer readable medium (Col 7, Row 35, RAM 55) comprising computer code for carrying out the method according to the claim 27 and 28, when said computer code is executed on a data processing system (Fig 12, and see Col 7, Rows 15-26).

8. Claims 31-32 are rejected under 35 USC 103(a) as being unpatentable over *Samworth (US 6118935 A)* in view of *Delabastita et al. (US 5766807 A)*.

Regarding Claim 31 and Claim 32, *Samworth* does not disclose a printing plate.

Delabastita discloses a printing plate for rendering an image thereon (Col 11, Rows 33-52).

It would've been obvious to one of ordinary skill in the art at the time of the invention to generate the image on the printing plate of *Delabastita* in order to produce high quality image having best qualities of AM and FM halftone screening.

Conclusion

9. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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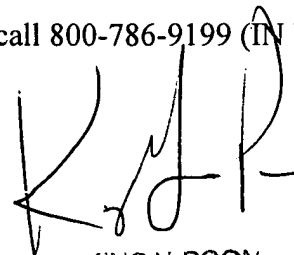
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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Richard Z. Zhu whose telephone number is 571-270-1587 or examiner's supervisor King Y. Poon whose telephone number is 571-272-7440. Examiner Richard Zhu can normally be reached on Monday through Thursday, 6:30 - 5:00.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RZ²
02/06/2008



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